

postal address  
p.o. box 177  
2600 MH Delft  
The Netherlands  
visiting address  
Rotterdamseweg 185  
Delft, The Netherlands

telephone  
+31 15 285 85 85  
telefax  
+31 15 285 85 82

email address  
info@deltares.nl  
internet address  
www.deltares.nl



Defense Technical Information Center  
8725 John J Kingman Road Ste 0944  
Fort Belvoir, VA 22060-6218  
USA

*your letter*

*your reference*

officer in charge  
A.E. Oorbeek

direct line  
015 285 8934

*our reference*

subject  
Reports, Award N00014-07-10-0963

date  
30 May, 2008

Dear Madam, Sir,

Please find enclosed:

- ☐ for your information
- ☐ at your request
- ☐ with reference to
- ☐ for review and/or comments, please comment before
- ☐ for further action
- ☐ for the meeting on
- ☐ please return the documents before
- ☒ SF 298 + Final Report

Sincerely,

Ad Oorbeek  
Financial Department

A handwritten signature in blue ink, appearing to be "A.O.", written over the printed name and title.

20080902052

enclosure(s)  
2

*Decisive advice and design for all water-related issues.*

Deltares is registered with the trade register of the Chamber of Commerce Haaglanden with number 41146461, as Foundation 'Stichting Deltares'.

AQ F08-11-10350

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 31-12-2007		2. REPORT TYPE memorandum		3. DATES COVERED (From - To) May 2007 - Dec 2007	
4. TITLE AND SUBTITLE Morphodynamic modeling of tidal mud flats				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER N00014-07-1-0963	
				5c. PROGRAM ELEMENT NUMBER	
				5d. PROJECT NUMBER 07PR07480-00	
6. AUTHOR(S) J.C. Winterwerp				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) WL   Delft Hydraulics PO Box 177, 2600 MH, Delft The Netherlands				8. PERFORMING ORGANIZATION REPORT NUMBER Z4071	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Dr. T.G. Drake Office of Naval Research 875 North Randolph Street Arlington, VA 22203-1995, USA				10. SPONSOR/MONITOR'S ACRONYM(S) ONR 321	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT no limited distribution					
13. SUPPLEMENTARY NOTES none					
14. ABSTRACT <p>The objective of the current research proposal is to develop and test a numerical model to simulate and predict the seasonal morphodynamic evolution of intertidal mud flats in macrotidal environments at high suspended sediment concentrations at the spatial scale of such flats. Our 2007 approach consists of participating in the Phase I – Project Planning workshops to prepare the Phase II – Detailed Studies part of the mudflat project. Our input consists in particular of:</p> <ul style="list-style-type: none"> <li>• The Asian Bay model developed within Delft3D</li> <li>• Setting up a strategy to measure the required sediment properties,</li> <li>• Setting up a strategy to calibrate and validate the morphodynamic model to be developed in Phase II of the study.</li> </ul>					
15. SUBJECT TERMS mudflats, morphodynamics					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT  UU	18. NUMBER OF PAGES  2	19a. NAME OF RESPONSIBLE PERSON J.C. Winterwerp
a. REPORT  U	b. ABSTRACT  U	c. THIS PAGE  U			19b. TELEPHONE NUMBER (Include area code) +31-15-2858813

# Morphodynamic modeling of tidal mud flats

Dr. Johan C. Winterwerp  
WL | Delft Hydraulics  
PO Box 177, 2600 MH Delft  
The Netherlands

tel: +31-15-285 8813; fax: +31-15-285 8582; email: [han.winterwerp@wldelft.nl](mailto:han.winterwerp@wldelft.nl)

Award Number: N00014-07-1-0963  
<http://www.wldelft.nl>

## LONG-TERM GOALS

Our long-term goal is to determine the morphological and geotechnical stability of mudflats and their variation in time, in particular the seasonal variations.

## OBJECTIVES

The objective of the current research proposal is to develop and test a numerical model to simulate and predict the seasonal morphodynamic evolution of intertidal mud flats in macrotidal environments at high suspended sediment concentrations at the spatial scale of such flats.

## APPROACH

Our 2007 approach consists of participating in the Phase I – Project Planning workshops to prepare the Phase II – Detailed Studies part of the mudflat project. Our input consists in particular of:

- The Asian Bay model developed within Delft3D
- Setting up a strategy to measure the required sediment properties,
- Setting up a strategy to calibrate and validate the morphodynamic model to be developed in Phase II of the study.

## WORK COMPLETED

Dr. Winterwerp participated in two workshops on the preparation of the detailed working plan for the coming years:

- March 26 – 30, Honolulu
- June 4 – 8, Seoul, Korea

## RESULTS

The results of the study consist of contributions to discussions and the various joint notes that have been drawn up during and after the workshops.

## IMPACT/APPLICATIONS

The working plan Phase I forms the basis for the work to be carried out in the next few years.

### **TRANSITIONS**

The 2007 transitions consist of participation in the workshops with American and Korean scientists.

### **RELATED PROJECTS**

This project has close relations to the MURI project from a technical-scientific point of view.

### **REFERENCES**

not relevant in 2007.

### **PUBLICATIONS**

none.

### **PATENTS**

none.

### **HONORS/AWARDS/PRIZES**

none.